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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/580,198

05/23/2006

Kensuke Nakamura

3209-115

1843

6449

7590

10/30/2007

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EXAMINER

LAM, CATHY FONG FONG

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

10/30/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

Office Action Summary

Application No.

10/580,198

Applicant(s)

NAKAMURA ET AL.

Examiner

Cathy Lam

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-39 is/are pending in the application.
- 4a) Of the above claim(s) 26-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 05-23-2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

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1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 18-25, drawn to a multilayered PWB.

Group II, claim(s) 26-39, drawn to a method for manufacturing a multilayered PWB.

2. The inventions listed as Groups I & II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I is a multilayered wiring board whereas group II involves with a plurality steps of forming the multilayered wiring board such steps might not be the only way of fabricating the multilayered PWB.

3. During a telephone conversation with Atty: Robert Murray on Oct 09, 2007 a provisional election was made with traverse to prosecute the invention of Group I, claims 18-25. Affirmation of this election must be made by applicant in replying to this Office action. Claims 26-39 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

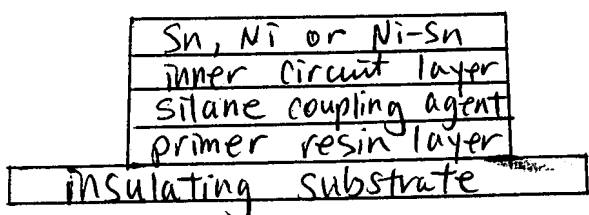
4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

5. Claims 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 18-20 are structurally indefinite, as it is unclear the positional relationship between the primer resin layer, the inner circuit, the insulating resin layer, the surface layer, the Sn, Ni or Sn-Ni and the silane coupling agent layer? Applicant is required to clarify where each layer is located with respect to the other layer.

As for the time being, the examiner is taking these layers as following:



In claim 19, it is unclear as to which "surface layer" is referring to?

Claim Objections

6. Claim 22 is objected to because of the following informalities: "micron m" is unclear, since *micron* defined as micrometer. Appropriate correction is required.

Claim Rejections - 35 USC § 102/103

7. Claims 18, 23-25 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Satoh et al (US 6187416).

Satoh teaches a resin composition for used in copper clad laminates.

The resin composition is a thermosetting resin used for impregnating fiber cloth to form a prepreg. Copper foil is formed onto the prepreg while the resin is in semicured state (col 1 L 14-24).

The resin composition is comprised of epoxy resin, a hardener, a solvent soluble aromatic polymer and a curing accelerator (col 4 L 23-47).

The solvent soluble aromatic polymer may either be a polyethersulfone resin or an aromatic polyamide resin each with at least one of hydroxyl or amino group (col 3 L 47-52).

The epoxy resin is in the amount of 40 to 80 parts by weight of the total resin composition (col 7 L 50-52).

The prior art teaches a similar resin composition, except for the amount of solvent soluble aromatic polyamide or the amount of each component of the resin component. One of ordinary skill in the art would modify the amount of each component because finding the desired composition is a matter of design scheme.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh et al (US 6187416) in view of JP 2001-284821.

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Sato teaches the present invention but is silent about having a silane coupling agent layer.

The Japanese document teaches a primer layer, that is used between an inner circuit layer and an insulating layer [0010]. The inner circuit layer has a surface roughness Ra of 0.1- 400 nm. The examiner is taking the position that such Ra value is relatively smooth.

The primer layer can be a silane coupling agent which can be an epoxy silane, an amino or mercapto functional silane coupling agent [0018].

In view of the prior art teachings, one of ordinary skill would either blend a silane coupling agent into the resin composition or place a silane coupling agent between the epoxy resin insulating layers because it is conventional to do so [0004] & [0005].

Regarding to plating additional metal onto the inner layer circuit, the examiner is taking the position that it is obvious that such plating reinforces the conductivity and stability of the inner layer circuit.

Regarding to the thickness of the primer resin layer since applicant has not stated any advantages of such chosen range, the examiner takes the position that one skill in the art could easily determine a workable thickness because it only involves routine experimentations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Cathy Lam
Primary Examiner
Art Unit 1794

cfl
October 22, 2007